

REMARKS

Claims 1-6 and 8-21 were pending in the present patent application, and are rejected. By the present amendment, claim 21 has been canceled. This application now includes claims 1-6 and 8-20.

Claim 21 was rejected under 35 U.S.C. 112, first paragraph. While Applicants disagree that claim 21 lacks support, claim 21 has been cancelled to further the prosecution of the present matter, and to reduce the number of issues in the event an appeal is filed. Please cancel claim 21 without prejudice or disclaimer.

Claims 1-6, 8-10, 12-16 and 18-21 were rejected under 35 U.S.C. § 102(e) as being anticipated by Liu (U.S. Patent No. 6,925,844).

In rejecting claim 1, the Examiner relies on the Liu lock 100 as corresponding to the recited “lock mechanism”, the key core 110 as corresponding to the recited actuator, the pair of keyways 112 and the positioning slot 114 as corresponding to the recited aperture, the core head 111 as corresponding to the recited “operator”, the key 200 as corresponding to the recited “turn-button”, the head driver 220 as corresponding to the head portion of the turn-button , the key blade portion 230 as corresponding to the recited “shaft”, and the helical key blade 236’ as corresponding to the recited “leading helical tip”.

In the Response to Arguments, second paragraph, at page 5, the Examiner asserts that the key of Liu is a turn-button or turnpiece, since keys and turn-buttons or turnpieces both are used to actuate a lock or deadbolt. Applicants respectfully submit that the art is replete with the use of the term turn-button or turn-piece, and is not used to mean a key. Notwithstanding, the Examiner still asserts patents 5,363,614; 5,140,843 and 3,630,053 as showing that it is known that keys are used as permanent turn-buttons or turn pieces. However, the present rejection under 35 U.S.C 102(e)

is based only on anticipation by Liu (US6,925,844). Applicants submit that the key 200 of Liu is not what is understood by one of ordinary skill in the art to be a turn-button (also sometimes spelled “turn button”, and also sometimes referred to as a turnpiece).

For example, the present application, as well as each of U.S. Patents 4,631,944; 5,317,889; 5,335,950; 5,441,318; 6,598,440; and 6,745,602 shows and describes a turn-button/turnpiece. The owners of these patents are variously Kwikset, Emhart or Newfrey LLC, who constitute a market share of about 60%. Accordingly, there is an extensive use of the terms turn-button/turnpiece in the art to refer to the particular item used in a door handle assembly that is mounted in an operator (e.g., door knob) to actuate a lock mechanism. However, clearly a turn-button is not a key that would be received in a keyway. Thus, the key 200 of Liu is not a turn-button, as recited in claim 1.

Most any house or apartment has an interior door, such as a bedroom or bathroom door, that includes a turn-button. It is well known in the art that the Liu key 200 is not mounted to the lock, such as the Liu lock 100, but rather is removably received in the keyways 112 such that the user can freely insert and remove the key from the keyway (see Liu column 4, lines 60-64). It is also well known in the art that a turn-button, sometimes also referred to in the art as a turn-piece, is mounted in the operator (e.g., door knob), such that a user cannot remove the turn-button. Notwithstanding, for clarification on this point, claim 1 was previously amended to recite that the turn-button is mounted in the operator “during assembly of said lockset”.

Further, the patents 5,363,614; 5,140,843 and 3,630,053 referenced by the Examiner show that in rare situations, a key may be inserted into a keyway and made permanent with the lock (e.g., solder, weld or mechanical retainer). Notwithstanding, the key must be inserted into the keyway of the lock mechanism, and thus is still functioning as a key. Further, the Examiner’s

assertion misses the point, in that such a permanent attachment is not what is disclosed in Liu, nor would it be consistent with the teaching in Liu, as the key in Liu always functions as a removable key.

In the Response to Arguments, first paragraph, at page 5, in response Applicants amendment of claim 1 to recite, “a turn-button mounted in said operator during assembly of said lockset, said turn-button including...” (emphasis added), the Examiner states with respect to Liu that if the prior art is capable of performing the intended use, then it meets the claim. However, the key in Liu always functions as a removable key, and thus is not a turn-button as the term is used in the present application, is not “mounted” in the operator, and the removable key of Liu is not mounted during assembly of the lockset. It is respectfully submitted that the Examiner’s assertion that Liu is “capable” of such a mounting is a tortured interpretation of Liu that is unsupported by Liu.

Applicants direct the Examiner’s attention to Liu Fig. 2B, that shows keyways 112 into which the spiraling key blades are inserted, and tumbler bores 120 for receiving the lock tumblers (not shown) which would be displaced by the spiraling key blade when the spiraling key blade is inserted into keyways 112. Considering the complexity of the Liu spiraling key blade/spiraling keyway configuration (see Liu Figs. 1, 2A and 2B), it simply does not follow that someone would then permanently attach the spiraling key blades in the spiraling keyways, as such would be a gross waste of manufacturing effort, and thus one skilled in the art would not be motivated to do so.

Liu discloses a removable key that is never mounted to an operator at any time, either during or after assembly of the lock into which the key is removably inserted.

In the Response to Arguments, paragraph 3, page 6, the Examiner asserts that one of ordinary skill in the art would recognize that the key blades of Liu are also known as shafts or shanks. Applicants respectfully disagree.

Liu discloses that the key 200 (see, e.g., Liu Figs 1, 3 and 5) expressly includes a shaft or “shank” in the form of “a shank 210” (see, e.g., Liu column 5, lines 34-45), and shank 210 is distinctly separate from the blade portion 230. Also, it is the blade portion 230, and not shank 210, that includes “a pair of helical blades 236” (Liu, column 5, lines 63-66; see also, Liu, Fig. 5). Further, Liu expressly identifies the structures of Liu Figs. 6A-6D as alternative structures for the “helical key blades” (Liu column 6, lines 51-67) e.g., blades 236’ (Fig. 6A), 236” (Fig. 6B), 236''' (Fig. 6C), and blades 236'''' and 236b'''' (Fig. 6D). With respect to the embodiments of Liu Figs. 6A and 6C, it is stated that “the key may have only one helical key blade” (Liu, column 6, lines 58-60). Thus, the Examiner’s assertion that the helical blade of Liu is a shaft or shank simply is inconsistent with the clear teaching of Liu.

In addition, and in view of the term “shank” as used in Liu, the spiraling key blade 236''' shown in Liu Fig. 6C does not constitute what one skilled in the art would consider as being a “shaft” or “shank”, nor does Liu support such a contention. Rather, Liu describes the spiraling element 236''' as a helical key blade having an elongated rectangular cross section (Liu column 6, lines 52-64).

As to the assertion that the spiraling key blade 236''' transmits rotational power, and thus is a shaft, Applicants direct the Examiner’s attention to Liu Figs. 2B, that shows keyways 112 into which the spiraling key blades are inserted. Rather than the spiraling key blades transmitting rotational power, the spiraling key blades are designed to follow respective keyways 112 so as to radially displace tumblers positioned in tumbler bores 120.

In view of the above, Applicants respectfully submit that Liu does not disclose, teach or suggest the subject matter of claim 1. Therefore, claim 1 is believed allowable in its present form.

Claim 2 depends from claim 1, and is believed allowable in view of its dependence on an otherwise allowable base claim. In addition, claim 2 is believed allowable in its own right.

Claim 2 recites, in part, “said leading helical end portion having a plurality of leading helical surfaces that taper and twist from a transition line of said shaft toward a tip end of said shaft.” (Emphasis added). In rejecting claim 2, the Examiner relies on Liu Fig. 6C.

In the Response to Arguments, paragraph 4, at page 6, the Examiner asserts that as shown in Liu Figures 6, “the helical surfaces taper towards a center, transition line (axial center line of the shaft), and end at the end of the shaft.” This statement is not understood, but in any event, deviates from the claim language in a material way. Claim 2 recites that the plurality of leading helical surfaces taper and twist from a transition line of said shaft toward a tip end of said shaft

Notwithstanding, in rejecting claim 1 from which claim 2 depends, the Examiner relies on the key blade portion 230 as corresponding to the recited “shaft”, and the helical key blade 236’’ as corresponding to the recited “leading helical tip”. However, notwithstanding that the shaft in Liu is “shank 210”, in Liu the surfaces of helical key blade 236’’ do not twist from a transition line of said shaft, as recited in claim 2, since it is the helical key blade portion 230 that is asserted by the Examiner to be the shaft, and thus does not define a transition line.

Further, while the surfaces of helical key blade 236’’ spiral, the surfaces of helical key blade 23’’ do not taper from a transition line of the shaft. As stated in Liu in relation to Fig. 6C, the key blade 236’’ is of elongated rectangular cross section (Liu column 6, lines 62-64), and as shown in Fig. 6C, uniformly spirals around a central axis while maintaining the diameter of the

spiral (necessarily so since it must be configured to follow the keyway(s) 112; see also Liu Fig.

2B), and thus does not taper.

In view of the above, Applicants respectfully submit that Liu does not disclose, teach or suggest the subject matter of claim 2. Therefore, claim 2 is believed allowable in its own right.

Claim 3 depends from claim 2, and is believed allowable in view of its dependence on an otherwise allowable base claim 1 and/or claim 2.

In addition, claim 3 is believed allowable in its own right. Claim 3 recites, in part, “said plurality of leading helical surfaces smoothly transition between **adjacent helical surfaces.**”

(Emphasis added).

In the Response to Arguments, paragraph 5, at page 6, the Examiner asserts that Liu Fig. 6C shows inner surfaces of the helical transition between the distinct helical surfaces with smooth continual webs absent of any abrupt stops or jagged edges, and thus a smooth transition between helical surfaces. Applicants respectfully disagree.

The embodiment of Liu Fig. 6C is expressly described as having “only one helical key blade” (Liu, column 6, lines 58-60). As further stated in Liu in relation to Fig. 6C, the key blade 236’ is of elongated rectangular cross section (see Liu column 6, lines 62-64). Being a single blade having rectangular cross section, the key blade 236’ of Liu Fig. 6C has four surfaces, and as is clearly shown in Fig. 6C, as between any two adjacent surfaces, the transition is abrupt, essentially at 90 degrees from one another since the cross section is rectangular. Other embodiments in Liu (e.g., helical key blades 236”) have a round cross section (and thus have a single outer surface with no transition) or have a polygonal cross section also with abrupt transitions as between surfaces. (See Liu column 6, lines 51-64).

In view of the above, Applicants respectfully submit that Liu does not disclose, teach or suggest the subject matter of claim 3. Therefore, claim 3 is believed allowable in its own right.

Claim 4 recites, “A turn-button for a lockset, comprising: a head portion; and a shaft extending from said head portion, said shaft having a leading helical end tip.” Liu does not disclose a turn-button for a lockset, having a head portion and a shaft extending from said head portion, the shaft having a leading helical end tip, for reason set forth above with respect to claims 1 and 2.

In view of the above, Applicants respectfully submit that Liu does not disclose, teach or suggest the subject matter of claim 4. Therefore, claim 4 is believed allowable in its present form.

Claims 5 and 6 depend, directly or indirectly, from claim 4, and are believed to be allowable in view of their dependence from otherwise allowable base claim 4. In addition, claim 6 is believed to be allowable in view of its dependence from otherwise allowable intervening claim 5. Further, claims 5 and 6 are believed allowable in their own right for substantially the same reasons set forth above with respect to claims 2 and 3, respectively.

Claim 8 is believed allowable in view of its dependence from otherwise allowable claim 1, and for reasons set forth above with respect to claim 1.

Claim 9 recites, “A lockset comprising: a lock mechanism including an actuator having an aperture; an operator; a turn-button mounted in said operator, said turn-button including a shaft; and means for facilitating self-alignment of said shaft of said turn-button with said aperture of said lock mechanism as said shaft of said turn-button is inserted into said aperture of said lock mechanism, said means including a plurality of leading helical surfaces that taper and twist from a transition line of said shaft toward a tip end of said shaft.”

Applicants submit that Liu does not disclose, teach or suggest a turn-button as recited in claim 9 for substantially the same reasons set forth above with respect to claim 1 and/or claim 2.

In the Response to arguments, paragraph 6, at page 6, the Examiner asserts that, “The spiral design of the shaft can only be inserted in a proper way, and thus due to congruent shapes of the shaft and aperture, the turn-button self-aligns to correctly unlock the lock mechanism.”

Applicants respectfully disagree.

In rejecting claim 9, reliance is placed by the Examiner on Liu column 7, lines 19-24, which state, “In an open-lock operation, the protrusion 216 of the key is firstly inserted into the positioning slot 114 provided in the center of the front end of the lock core 110 for positioning and facilitating insertion of the key. Each end of the helical key blade is then aligned with the entry of the keyway.” While the passage relied on by the Examiner has to do with alignment, Liu does not disclose, teach or suggest a means for *self-alignment* of the protrusion 216 of shank 210.

In view of the above, Applicants respectfully submit that Liu does not disclose, teach or suggest the subject matter of claim 9. Therefore, claim 9 is believed allowable in its present form.

Claim 10 depends from independent claim 9. Claim 10 is believed allowable in view of its dependence from otherwise allowable base claim 9.

In addition, the subject matter of claim 10 corresponds generally to that of claim 3, and thus is believed allowable in its present form for substantially the same reasons set forth above with respect to claim 3.

Claims 12-16 and 20 depend, directly or indirectly, from independent claim 1. Claims 12-16 and 20 are believed allowable in view of their dependence from otherwise allowable base claim 1, and for reasons set forth above with respect to claim 1.

Claims 18 and 19 depend from independent claim 9. Claims 18 and 19 are believed allowable in view of their dependence from otherwise allowable base claim 9, and for reasons set forth above with respect to claim 9.

Claim 21 was canceled.

For at least the reasons set forth above, Applicants respectfully request that the rejection of pending claims 1-6, 8-10, 12-16, and 18-20 under 35 U.S.C. 102(e) as being anticipated by Liu be withdrawn.

Claims 11 and 17 were rejected under 35 U.S.C. 103(a) as being unpatentable over Liu in view of Hurdle (U.S. Patent No. 842,834).

Claim 11 depends from claim 1 and is believed allowable in view of its dependence from otherwise allowable base claim 1, since Hurdle does not overcome the deficiencies of Liu with respect to claim 1.

Also, claim 17 depends from claim 9 and is believed allowable in view of its dependence from otherwise allowable base claim 9, since Hurdle does not overcome the deficiencies of Liu with respect to claim 9.

In addition, claim 11 is believed allowable in its own right.

Claim 11 recites, "The lockset of claim 1, wherein said operator is one of a door knob and a door lever, said shaft of said turn-button extending from said head portion through said one of said door knob and said door lever to engage said aperture of said lock mechanism." In rejecting claim 11, the Examiner asserts that claim 11 is obvious as a combination of the Liu locking assembly, e.g., lock cylinder having helical keyways 112 in Liu that is contained in the lock shell 102 in Liu, with the door knob of Hurdle. Claim 11 recites with respect to base claim 1 that the operator is one of a door knob and a door lever, and it is the shaft of the turn-button that extends

from the head portion of the turn-button through the door knob (or door lever) to engage the aperture of the lock mechanism. In particular, the Examiner has asserted that key 200 of Liu corresponds to the recited “turn-button”, key blade portion 230 as corresponding to the recited “shaft”, and helical key blades 236 as corresponding to the recited “leading helical tip”. In Hurdle, it is the lock cylinder (m) that extends to the outside of the door knob. Thus, even if combined (although Applicants maintain it would not be obvious to do so), the key 200 of Liu would engage the lock cylinder (m) of Huddle, and thus would not provide a configuration of “said shaft of said turn-button extending from said head portion through said one of said door knob and said door lever to engage said aperture of said lock mechanism.”

Thus, claim 11 is believed allowable in its own right.

In view of the above, Applicants respectfully request that the rejection of claims 11 and 17 under 35 U.S.C. 103(a) as being unpatentable over Liu in view of Hurdle be withdrawn.

For the foregoing reasons, Applicants believe the present application is in condition for allowance in its present form, and it is respectfully requested that the Examiner so find and issue a Notice of Allowance in due course.

In the event Applicants have overlooked the need for an extension of time, an additional extension of time, payment of fee, or additional payment of fee, Applicants hereby conditionally petition therefor and authorize that any charges be made to Deposit Account No. 20-0095, TAYLOR & AUST, P.C.

Should any question concerning any of the foregoing arise, the Examiner is invited to
telephone the undersigned at (317) 894-0801.

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